

AMENDMENTS TO THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A generator-motor comprising:

a motor including a rotor ~~(55)~~ and a stator ~~(56, 57)~~ and attaining a function as a motor-generator; and

a control device ~~(20, 81, 82A to 82C, 83, 84)~~ arranged on an end surface of said motor ~~(50)~~ so as to surround a rotation shaft ~~(50A)~~ of said motor ~~(50)~~ and controlling drive of said motor ~~(50)~~.

2. (Currently Amended) The generator-motor according to claim 1, wherein

said control device ~~(20, 81, 82A to 82C, 83, 84, 86A to 86F)~~ includes

first, second and third electrode plates ~~(81, 82A to 82C, 83)~~ arranged so as to substantially form a U-shape to surround the rotation shaft ~~(50A)~~ of said motor ~~(50)~~, and

a polyphase switching element group ~~(23 to 25)~~ controlling a current supplied to said stator ~~(56, 57)~~,

said polyphase switching element group ~~(Tr1 to Tr6)~~ is constituted of a plurality of arms ~~(23 to 25)~~, a number of the arms corresponding to a number of phases of said motor ~~(50)~~, and each arm constituted of first and second switching elements ~~(Tr1, Tr2; Tr3, Tr4; Tr5, Tr6)~~,

said first electrode plate ~~(81)~~ is arranged in a position apart from said rotation shaft ~~(50A)~~ by a prescribed distance in a direction perpendicular to said rotation shaft ~~(50A)~~,

said second and third electrode plates ~~(82A to 82C, 83)~~ are arranged outside said first electrode plate ~~(81)~~,

said first and second switching elements (~~Tr1, Tr2, Tr3, Tr4, Tr5, Tr6~~) are connected electrically in series between said first electrode plate (~~81~~) and said third electrode plate (~~83~~),

said plurality of first switching elements (~~Tr1, Tr3, Tr5~~) are arranged on said first electrode plate (~~81~~), and

said plurality of second switching elements (~~Tr2, Tr4, Tr6~~) are arranged on said second electrode plate (~~82A to 82C~~).

3. (Currently Amended) The generator-motor according to claim 2, wherein said control device (~~20, 81, 82A to 82C, 83, 84, 86A to 86F~~) further includes a control circuit (~~70~~) controlling said plurality of first and second switching elements (~~Tr1, Tr2, Tr3, Tr4, Tr5, Tr6~~), and

said control circuit (~~70~~) is provided on a ceramic substrate (~~84~~) arranged in a direction similar to an inplane direction of said first, second and third electrode plates (~~81, 82A to 82C, 83~~) in a substantially U-shaped notch.

4. (Currently Amended) The generator-motor according to claim 3, wherein said control device (~~20, 81, 82A to 82C, 83, 84, 86A to 86F~~) further includes a plurality of first wires (~~86A, 86C, 86E~~) connecting said control circuit (~~70~~) to said plurality of first switching elements (~~Tr1, Tr3, Tr5~~), and

a plurality of second wires (~~86B, 86D, 86F~~) connecting said control circuit (~~70~~) to said plurality of second switching elements (~~Tr2, Tr4, Tr6~~),

said plurality of first wires (~~86A, 86C, 86E~~) are arranged between said rotation shaft (~~50A~~) and said first electrode plate (~~81~~) so as to surround said rotation shaft (~~50A~~), and

said plurality of second wires (~~86B, 86D, 86F~~) are arranged between said rotation shaft (~~50A~~) and said first electrode plate (~~81~~) and between said first electrode plate (~~81~~) and said motor (50).

5. (Currently Amended) The generator-motor according to claim 4, wherein each of said plurality of first and second switching elements (~~Tr1 to Tr6~~) includes a control terminal (~~G~~) receiving a control signal from said plurality of first wires (~~86A, 86C, 86E~~) or said plurality of second wires (~~86B, 86D, 86F~~), an input terminal (~~D~~) receiving a direct current, and an output terminal (~~S~~) outputting a direct current in accordance with control contents by said control signal,

said input terminal (~~D~~) of said first switching element (~~Tr1, Tr3, Tr5~~) is in contact with said first electrode plate (~~81~~),

said control terminal (~~G~~) of said first switching element (~~Tr1, Tr3, Tr5~~) is arranged on a side of said rotation shaft (~~50A~~) and connected to said first wire (~~86A, 86C, 86E~~),

said output terminal (~~S~~) of said first switching element (~~Tr1, Tr3, Tr5~~) is arranged on a side of said second electrode plate (~~82A to 82C~~) and connected to said second electrode plate (~~82A to 82C~~),

said input terminal (~~D~~) of said second switching element (~~Tr2, Tr4, Tr6~~) is in contact with said second electrode plate (~~82A to 82C~~),

said control terminal (~~G~~) of said second switching element (~~Tr2, Tr4, Tr6~~) is arranged on a side of said rotation shaft (~~G~~) and connected to said second wire (~~86B, 86D, 86F~~), and

said output terminal (~~S~~) of said second switching element (~~Tr2, Tr4, Tr6~~) is arranged on a side of said third electrode plate (~~83~~) and connected to said third electrode plate (~~83~~).

6. (Currently Amended) The generator-motor according to claim 2, wherein said first and second electrode plates (~~81, 82A to 82C~~) are arranged in a first plane, and said third electrode plate (~~83~~) is arranged in a second plane different from said first plane.

7. (Currently Amended) The generator-motor according to claim 6, wherein said second plane is located closer to said motor (~~50~~) than said first plane is.

8. (Currently Amended) The generator-motor according to claim 2, wherein said plurality of arms (~~23 to 25~~) are radially arranged in the inplane direction of said first, second and third electrode plates (~~81, 82A to 82C, 83~~).

9. (Currently Amended) The generator-motor according to claim 1, wherein said control device (~~20, 81, 82A to 82C, 83, 84, 86A to 86F~~) includes first and second electrode plates (~~81, 82A to 82C~~) arranged so as to substantially form a U-shape to surround the rotation shaft (~~50A~~) of said motor (~~50~~),

a polyphase switching element group (~~Tr1 to Tr6~~) controlling a current supplied to said stator (~~56, 57~~), and

a control circuit (~~70~~) controlling said polyphase switching element group (~~Tr1 to Tr6~~), and

said control circuit (~~70~~) is provided on a ceramic substrate (~~84~~) arranged in a direction similar to an inplane direction of said first and second electrode plates (~~81, 82A to 82C~~) in a substantially U-shaped notch.

10. (Currently Amended) The generator-motor according to claim 9, wherein

said control circuit ~~(70)~~ is resin-molded.

11. (Currently Amended) The generator-motor according to claim 9, wherein said control device ~~(20, 81, 82A to 82C, 83, 84, 86A to 86F)~~ further includes a Zener diode ~~(DT1 to DT3)~~ protecting said polyphase switching element group ~~(Tr1 to Tr6)~~ against surge, and

said Zener diode ~~(DT1 to DT3)~~ is arranged in said notch.

12. (Currently Amended) The generator-motor according to claim 9, wherein said control device ~~(20, 81, 82A to 82C, 83, 84, 86A to 86F)~~ further includes a capacitive element ~~(22)~~ smoothing a DC voltage from a DC power supply ~~(40)~~ and supplying the smoothed DC voltage to said polyphase switching element group ~~(Tr1 to Tr6)~~, and

said capacitive element ~~(22)~~ is arranged between said ceramic substrate ~~(84)~~ and said second electrode plate ~~(82A to 82C)~~.

13. (Currently Amended) The generator-motor according to claim 9, wherein said control device ~~(20, 81, 82A to 82C, 83, 84, 86A to 86F)~~ further includes a field coil control unit ~~(40)~~ controlling current feed to a field coil ~~(54)~~ different from said stator ~~(56, 57)~~, and

said field coil control unit ~~(40)~~ is arranged on said ceramic substrate ~~(84)~~.

14. (Currently Amended) The generator-motor according to claim 9, wherein a leadframe ~~(86A to 86F)~~ continuing to said first and second electrode plates ~~(81, 82A to 82C)~~ from said ceramic substrate ~~(84)~~ and said first and second electrode plates ~~(81, 82A to 82C)~~ are arranged in an identical plane.